





means for engaging and transporting said shaped continuous material through an enclosed volume having a pressure which is lower than said higher pressure so as to produce cell nucleation in said shaped continuous material and means for maintaining the temperature of said shaped continuous material at a selected temperature as said material is transported through said enclosed volume at said lower pressure; and

foam heating means comprising heaters for heating said shaped continuous material as it exits said enclosed volume so as to produce a shaped continuous foamed material having a plurality of cells distributed substantially throughout said shaped continuous foamed material.

9. A system in accordance with claim 8 wherein said die means is a sheet die means for providing a continuous sheet of material.

10. A system in accordance with claim 9 wherein said transporting and temperature maintaining means includes a plurality of chilled rollers.

11. A system in accordance with claim 10 wherein said engaging and transporting means further includes means for controlling the position of at least one of said rollers so as to control the residence time of said continuous sheet of material as it is transported through said enclosed volume.

12. A system in accordance with claim 9 wherein said foam heating means includes:

at least one roller engaging and transporting said continuous sheet of material exiting said enclosed volume along a path adjacent said heaters; and

means for controlling the position of at least one of said one or more rollers to control the time over which the continuous sheet of material is transported along said path adjacent said heaters.

13. A system in accordance with claim 9 and further including means further engaging said continuous sheet of foamed material for annealing said continuous sheet of foamed material.

14. A system for producing a foamed material comprising

extrusion means;

die means connected to said extrusion means for shaping material;

means for supplying a material to be foamed to said extrusion means;

means for heating said extrusion means to place said material in a molten state during extrusion thereof in said extrusion means;

means connected to said extrusion means for supplying a supercritical fluid at a higher pressure than atmospheric pressure to said extrusion means to introduce said supercritical fluid into said molten material so that said molten material is effectively saturated with said supercritical fluid, said material which is saturated with said supercritical fluid being supplied from said extrusion means to said die means to produce a shaped continuous material.

means for engaging and transporting said shaped continuous material through an enclosed volume having a pressure which is substantially the same as said higher pressure and means for maintaining the temperature of said shaped continuous material at a selected temperature as said shaped continuous material is transported through said enclosed volume at said higher pressure; and





